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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/552,180	04/18/2000	Gary Greenberg	GB0002	2294

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08/04/2003

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EXAMINER

NGUYEN, THONG Q

ART UNIT

PAPER NUMBER

2872

DATE MAILED: 08/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/552,180

Applicant(s)

GREENBERG, GARY

Examiner

Thong Q. Nguyen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) 20,21 and 39-41 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 42-50 is/are allowed.
- 6) ☒ Claim(s) 1-19 and 22-37 is/are rejected.
- 7) ☒ Claim(s) 38 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 4/10/00 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Invention I in Paper No. 8 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

As a result of applicant's election, the elected claims to be examined in this Office action are claims 1-19, 22-38 and 42-50. Claims 20-21 and 39-41 have been withdrawn from further consideration as being directed to non-elected inventions.

Drawings

2. The drawings contain twelve sheets of figures 1-24 were received on 4/18/2000. These drawings are objected by the Examiner for the following reasons.

3. Figures 1, 1a and 6 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: In particular, the reference "179a" stated in page 15, line 35 is not shown in at least one figure. A proposed drawing correction or corrected drawings are required in

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reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

6. The disclosure is objected to because of the following informalities: a) Pages 7-8: The use of references "27" and "28" is not consistent because each of the mentioned reference is used to refer to two different items. In particular, the reference "27" refers to both an object (page 7, line 11) and an array of light-emitting diodes (page 8, line 8) and the reference "28" refers to both an image plane (page 7, line 1) and LEDs (page 8, line 8); b) Page 10: line 26, "82" should be changed to --83--. Applicant should note that the mask is labeled as --83-- in the same page on line 18 and shown in figure 9a while the reference "82" is referred to a lens as shown in the same page on line 17. There are still some grammatical and idiomatic errors in the specification. Applicant should carefully proofread the specification. Appropriate correction is required.

Objections

7. Claims 1, 15, 34 and 42 are objected to because of the following informalities. Appropriate correction is required.

a) In each of claims 1, 34 and 42, the feature "the portion of the objective aperture" should be changed to ---a portion of the objective aperture---. The

reason is that the mentioned feature recited in each claim does not have a proper antecedent basis

b) In claim 15, on line 1, --aperture—should be added after “objective”. Applicant should note that since the base claim(s) does not provide an objective element, thus, the recitation of “the objective” on line 1 of claim 15 lacks a proper antecedent basis.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1, 3-4, 7, 16, and 34-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Piller et al (U.S. Patent No. 4,407,569).

Piller et al discloses a contrast microscope having a transmitting illumination. The section of the microscope as described in columns 2-3 and shown in figures 1-3 comprises a condenser lens system (4) and an objective lens system (3) each provides an objective aperture. A slide (12) supporting a plurality of diaphragms (8, 9, 10) which is able to select to insert into the objective aperture of the condenser system. The diaphragm (10) comprises a region (10b) having a shape of a sector of a phase annulus and mounted in a ring (10a) which is rotatable within the slide (12). In column 3, lines 30+, Piller et al disclose that the diaphragm (10) is rotatable to provide a three-dimensional image of the sample

(O) to an observer. As a result, it is clearly that an observer is able to continuously rotate the diaphragm for viewing a 3-D image of the object. While Piller et al do not clearly show a light source or an illuminating light path; however, a microscope with a transmitting illumination is inherently comprises a light source disposed in front of a condenser lens system for providing an illuminating to an object via the condenser lens system.

10. Claims 1, 3-4, 7, 13-19, and 34-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Greenberg (U.S. Patent No. 5,706,128).

Greenberg discloses a contrast microscope having a transmitting illumination. The system as described in columns 4-6 and shown in figures 1-3 comprises a condenser lens system (21) having lens elements and an objective aperture. A carrier (27) supporting a plurality of aperture masks having different configurations in dimension and/or shape wherein any mask is able to select to insert into the illuminating light path at the objective aperture position of the condenser lens system. The carrier is rotatable about a rotational axis (28) which is oriented in a parallel direction with the optical axis of the condenser lens system, thus any mask which is not in the illuminating path is located off-axis with respect to the illuminating light path. Regarding to the feature "dynamic aperture mask" recited in the claims, it is noted that such feature is readable from the aperture masks disposed in the rotatable disk (27) provided by Greenberg because the disk when continuously rotates about the rotational axis will change the size and amount of light passing through a particular portion of the objective

aperture as well as will change the position/area of the objective aperture where the bundle of light passes.

11. Claims 7, 10-11, and 13-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Baur Schmidt (Germany reference No. 34 09 657).

Baur Schmidt discloses a contrast microscope having a transmitting illumination. The system as described in pages 7-9 and shown in figures 1-2 comprises an objective lens system (1) having lens elements and an objective aperture. A carrier (13) supporting a plurality of aperture masks in the form of overlapping opaque discs wherein a rotation of the masks will define an aperture whose shape is variable. The carrier is rotatable about a rotational axis (28) which is oriented in an off-axis direction with the optical axis of the objective lens system, thus any mask which is not in the illuminating path is located off-axis with respect to the illuminating light path. Regarding to the feature "dynamic aperture mask" recited in the claims, it is noted that such feature is readable from the aperture masks disposed in the rotatable disk (27) provided by Baur Schmidt because the disk when continuously rotates about the rotational axis will change the size and amount of light passing through a particular portion of the objective aperture as well as will change the position/area of the objective aperture where the bundle of light passes.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Baurschmidt.

The aperture masks provided by Baurschmidt does not have a structure of an expandable bellows as recited in present claim 9; however, such a structure is not critical to the invention because applicant has admitted and discloses a plurality of embodiments relating to the structure of the masks including a structure of two overlapping discs. See present claim 11, for example. Thus, absent any showing of criticality, it would have been obvious to one skilled in the art at the time the invention was made to utilize nay kind of stop or diaphragm with an operating mechanism including bellows or overlapping discs, etc.. for the purpose of varying the aperture of the iris or the diaphragm.

14. Claims 22-23, 26-27 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Piller et al.

Piller et al discloses a contrast microscope having a transmitting illumination. The section of the microscope as described in columns 2-3 and shown in figures 1-3 comprises a condenser lens system (4) and an objective lens system (3) each provides an objective aperture. A slide (12) supporting a plurality of diaphragms (8, 9, 10) which is able to select to insert into the objective aperture of the condenser system. The diaphragm (10) comprises a region (10b) having a shape of a sector of a phase annulus and mounted in a ring (10a) which is

rotatable within the slide (12). In column 3, lines 30+, Piller et al disclose that the diaphragm (10) is rotatable to provide a three-dimensional image of the sample (O) to an observer. As a result, it is clearly that an observer is able to design a method for viewing an image of an object in three-dimensionally aspect by setting forth a step of continuously rotating the diaphragm. While Piller et al do not clearly show a light source or an illuminating light path; however, a microscope with a transmitting illumination is inherently comprises a light source disposed in front of a condenser lens system for providing an illuminating to an object via the condenser lens system.

15. Claims 22-23, 26-27, 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greenberg.

Greenberg discloses a contrast microscope having a transmitting illumination. The system as described in columns 4-6 and shown in figures 1-3 comprises a condenser lens system (21) having lens elements and an objective aperture. A carrier (27) supporting a plurality of aperture masks having different configurations in dimension and/or shape wherein any mask is able to select to insert into the illuminating light path at the objective aperture position of the condenser lens system. The carrier is rotatable about a rotational axis (28) which is oriented in a parallel direction with the optical axis of the condenser lens system, thus any mask which is not in the illuminating path is located off-axis with respect to the illuminating light path. While Greenberg does not clearly discloses a method having a step of continuously rotating the disc; however, it is clearly

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that an observer is able to use the apparatus provided by Greenberg and design a method for viewing an image of an object in three-dimensionally aspect by setting forth a step of continuously rotating the disk to improve the quality of the image in its 3-dimensional aspect.

16. Claims 22-23, 25-27 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujihara et al (U.S. Patent No. 4,852,985).

Fujihara et al disclose a contrast microscope having a transmitting illumination. The system as described in column 4 and shown in figure 6 comprises a condenser lens system (6) having lens elements and an objective aperture (5). A set of LEDs (2) disposed in the vicinity of the aperture wherein the amount of the LEDs to be used in a particular illuminating pattern is made and controlled by a control circuit ©. While Fujihara et al do not clearly discloses a method having a step of continuously rotating the disc; however, it is clearly that an observer is able to use the apparatus provided by Fujihara et al and design a method for viewing an image of an object in three-dimensionally aspect by setting forth a step of continuously varying/changing the number of LEDs for the purpose of varying/changing the illuminating pattern so that a 3-dimensional aspect of the image is obtained.

17. Claims 1-7, 16, 22-23, and 26-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taira (U.S. Patent No. 4,413,889) in view of Piller et al (U.S. Patent No. 4,407,569).

Taira discloses a focusing device for use with a microscope. The focusing device is in the form of a sector shape having a portion for permitting light passing therethrough. See column 2 and figure 4. Regarding to the position of the focusing device inside the microscope, in column 1, Taira discloses that the device can be located in an objective aperture (Po) of a condenser lens (14) or that (P1) of an objective lens (16) or in a position (P2) of the viewing path. Taira does not disclose that the focusing device is rotated for the purpose of providing a 3-D image of an object. However, the use of a focusing device in the form of a sector-shaped disc which is rotated for the purpose of providing a 3-D image of an object to an observer is clearly disclosed in the art as can be seen in the microscope provided by Piller et al. In particular, Piller et al discloses a contrast microscope having a transmitting illumination. The section of the microscope as described in columns 2-3 and shown in figures 1-3 comprises a condenser lens system (4) and an objective lens system (3) each provides an objective aperture. A slide (12) supporting a plurality of diaphragms (8, 9, 10) which is able to select to insert into the objective aperture of the condenser system. The diaphragm (10) comprises a region (10b) having a shape of a sector of a phase annulus and mounted in a ring (10a) which is rotatable within the slide (12). In column 3, lines 30+, Piller et al disclose that the diaphragm (10) is rotatable to provide a three-dimensional image of the sample (O) to an observer. As a result, it is clearly that an observer is able to design a method for viewing an image of an object in three-dimensionally aspect by setting forth a step of continuously rotating the

diaphragm. Regarding to different positions of the device in the microscope as recited in claims 6, 29-31 and 33, such an arrangement in the claimed positions is merely that of a preferred embodiment and no criticality has been disclosed. The support for that conclusion is found in the present specification and claimed in which applicant has disclosed and claimed that the position of the focusing device/diaphragm can locate in the objective aperture of the condenser lens or objective lens, etc.. which arrangements are clearly disclosed by Taira. Thus, it would have been obvious to one skilled in the art at the time the invention was made to utilize the system of Taira and rotating the focusing device as suggested by Piller et al for the purpose of providing a 3-D image of an object to the observer. It would also have been obvious to position the focusing device in other location of the microscope including the position of eyepoint or phototube, etc.. for the purpose of recording/viewing the image.

18. Claims 1-8, 12-16, 22-24, and 26-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kley (U.S. Patent No. 4,561,731) in view of Piller et al (U.S. Patent No. 4,407,569).

Kley discloses a light controlling system for use with a microscope. The light controlling system comprises a set of liquid crystal cells operated and controlled by a circuitry system so that the size of light will depend upon the number of cells opening/being transmittance by the inputs from the circuitry. The opening of the cells can be a sector-shaped configuration for permitting light passing therethrough. See column 25 and figure 27. Regarding to the position of the

focusing device inside the microscope, Kley discloses that the device can be located in an objective aperture of a condenser lens or that (P1) of an objective lens or in a position of the viewing path. See figure 14. While Kley suggests that number of the cells or the sector is continuously changed/varied for the purpose of providing a 3-D image of an object. However, the use of a light controlling device in the form of a sector-shaped disc which is rotated for the purpose of providing a 3-D image of an object to an observer is clearly disclosed in the art as can be seen in the microscope provided by Piller et al. In particular, Piller et al discloses a contrast microscope having a transmitting illumination. The section of the microscope as described in columns 2-3 and shown in figures 1-3 comprises a condenser lens system (4) and an objective lens system (3) each provides an objective aperture. A slide (12) supporting a plurality of diaphragms (8, 9, 10) which is able to select to insert into the objective aperture of the condenser system. The diaphragm (10) comprises a region (10b) having a shape of a sector of a phase annulus and mounted in a ring (10a) which is rotatable within the slide (12). In column 3, lines 30+, Piller et al disclose that the diaphragm (10) is rotatable to provide a three-dimensional image of the sample (O) to an observer. As a result, it is clearly that an observer is able to design a method for viewing an image of an object in three-dimensionally aspect by setting forth a step of continuously varying or changing the number of cells or just varying/changing the position of the sector defined by the cells. Regarding to different positions of the device in the microscope as recited in claims, such an arrangement in the

claimed positions is merely that of a preferred embodiment and no criticality has been disclosed. The support for that conclusion is found in the present specification and claimed in which applicant has disclosed and claimed that the position of the focusing device/diaphragm can locate in the objective aperture of the condenser lens or objective lens, etc.. which arrangements are clearly disclosed by Kley. Thus, it would have been obvious to one skilled in the art at the time the invention was made to utilize the system of Kley and rotating the focusing device as suggested by Piller et al for the purpose of providing a 3-D image of an object to the observer. It would also have been obvious to position the focusing device in other location of the microscope including the position of eyepoint or phototube, etc.. for the purpose of recording/viewing the image.

19. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Greenberg (U.S. Patent No. 5,706,128) in view of Ozeki (U.S. Patent No. 4,836,667).

Greenberg discloses a contrast microscope having a transmitting illumination. The system as described in columns 4-6 and shown in figures 1-3 comprises a condenser lens system (21) having lens elements and an objective aperture. A carrier (27) supporting a plurality of aperture masks having different configurations in dimension and/or shape wherein any mask is able to select to insert into the illuminating light path at the objective aperture position of the condenser lens system. The carrier is rotatable about a rotational axis (28) which is oriented in a parallel direction with the optical axis of the condenser lens system, thus any mask which is not in the illuminating path is located off-axis with

respect to the illuminating light path. While Greenberg does not clearly disclose a method having a step of continuously rotating the disc; however, it is clearly that an observer is able to use the apparatus provided by Greenberg and design a method for viewing an image of an object in three-dimensionally aspect by setting forth a step of continuously rotating the disk to improve the quality of the image in its 3-dimensional aspect. It is noted that Greenberg does not clearly state that the step of locating the microscope focal plane at various locations within the object as claimed; however, the movement of the stage supporting a plurality of interest areas of an object for the purpose of positioning a particular interest area to be viewed is known to one skilled in the art as can be seen in the microscope provided by Ozeki when he discloses the movement of the stage for such a purpose. Thus, it would have been obvious to one skilled in the art at the time the invention was made to move the stage supporting the object in the system of Greenberg by moving the stage as suggested by Ozeki for the purpose of positioning a particular interest area to be viewed.

Allowable Subject Matter

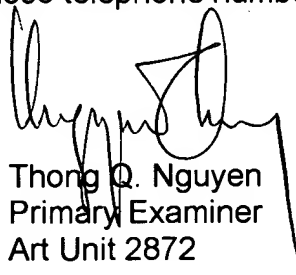
20. Claims 42-50 are allowed the cited art.
21. Claim 38 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thong Q. Nguyen whose telephone number is (703) 308-4814. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew A Dunn can be reached on (703) 305-0024. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.



Thong Q. Nguyen
Primary Examiner
Art Unit 2872

July 28, 2003